

11 TO TRACE THE PATH OF POLLEN TUBE

11.1 INTRODUCTION

Pollen grains are formed in pollen sacs and after dehiscence the pollen grains are released. Pollen grains are shed at 2 or 3-nucleate stage. They reach their destination, the stigmatic surface of the pistil through various agencies. The transfer of pollens from anther of one flower to the stigma of another flower is pollination. Once they are at the stigma, the pollens need to find a way for the male gametes to the egg located inside the female gametophyte for fertilization. For this purpose, the pollen grains germinate on stigma and put forth tubes known as pollen tubes which grow through the style and find their way into the ovules. Here male gametes are released and fertilization occurs. Here you will study the path of pollen tube in pollinated *Portulaca* plant.

Objectives

- To trace the path of pollen tube through stigma and style to the pistil of *Portulaca*.

11.2 MATERIALS REQUIRED

Portulaca flowers

Lactophenol

Cotton blue

Forceps

Needles

Slides

Coverslips

Microscope

11.3 PROCEDURE

Take a *Portulaca* pistil and place it on a clean slide. With the help of forceps dissect out stigma and style carefully. Place two or three drops of cotton blue solution on them, followed by two drops of lactophenol. Warm the slides gently for two or three minutes. Tease the stigmatic and stylar tissue gently. Place a coverslip and tap to spread the mounted material. Now the slide is ready for observation (Fig. 11.1).

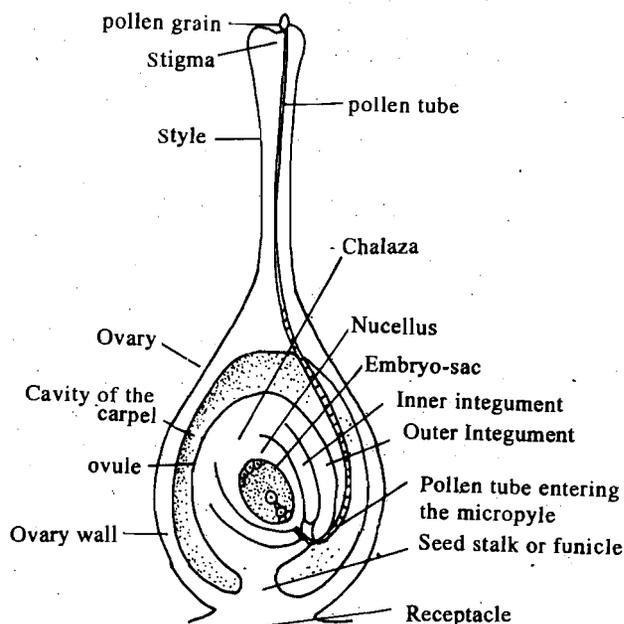


Fig. 11.1: Path of pollen tube.

11.4 OBSERVATIONS

1. Trace the pollen tubes continuing from the pollen grains and draw the diagrams.

2. Draw a diagram showing the path of pollen tube.

3. What is the importance of pollen tube and why does it grow?

.....
.....
.....
.....

4. Is pollen tube extension of the exine or the intine?

.....
.....
.....
.....

5. What do you observe at the tip of pollen tube?

.....
.....
.....
.....

6. What is the fate of the two male gametes?

.....
.....
.....
.....

11.5 PRECAUTIONS

1. Do not overheat the material.
2. Tapping should be done gently.
3. Before making the slide, make sure that the stigma is pollinated.
4. Do not spread the material too much.